

REMARKS

Claims 1, 3-12 and 15-23 are pending in this application. By this Amendment, claims 1, 3-12 and 15-20 are amended, and claims 21-23 are added. Support for the amendments can be found, for example, at page 11, lines 27-36, page 17, lines 4-19 and the original claims. No new matter is added. Reconsideration based on the amendments and following remarks is respectfully requested.

I. Objection to the Drawing

The Office Action objects to the drawings for informalities of Figs. 2-7. The attached replacement drawing sheets correct the informalities. Accordingly, reconsideration and withdrawal of the objection are respectfully requested.

II. Objection to the Abstract

Applicants have amended the Abstract to conform to the formalities noted in the Office Action. Accordingly, Applicants respectfully request withdrawal of the objection.

III. Objections to the Specification

The Office Action objects to the specification for informalities. By this Amendment, the specification is amended to conform to the formalities noted in the Office Action. Accordingly, Applicants respectfully request withdrawal of the objection.

IV. Rejection Under 35 U.S.C. §112, Second Paragraph

The Office Action rejects claims 11 and 19 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. By this Amendment, claims 11 and 19 are amended in light of the Examiner's comments. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

V. Rejections Under 35 U.S.C. §102 or §103

The Office Action rejects claims 1, 3-6, 8-12, 15, 16 and 18 under 35 U.S.C. §102(b) or §103(a) over Willis (U.S. Patent No. 6,134,317); claim 7 under 35 U.S.C. §103(a) over Willis in view of Campbell (U.S. Patent No. 3,681,209); claims 17 and 19 under 35 U.S.C. §103(a) over Willis in view of Irie (U.S. Patent No. 5,314,606); and claim 20 under 35 U.S.C. §103(a) over Willis in view of Shikida (U.S. Patent No. 5,284,179). Applicant respectfully traverses the rejections.

A. Willis

By this Amendment, claim 1 recites, *inter alia*, that "said valve is in a closed state in an electrolytic salt solution comprising an ion having high steric hindrance, said polymer blocks off said pores of said microporous membrane by incorporating the ion having high steric hindrance." Willis does not disclose these features.

Willis merely discloses that when electroactive polymer has a relatively small state of charge, the cross-sectional region in a direction parallel to a portion of pore that is blocked by electroactive polymer is relatively small (see Willis, Fig. 3B, col. 4, lines 42-47), and that when electroactive polymer has a relatively large state of charge, the cross-sectional region in a direction parallel to a portion of pore that is blocked by electroactive polymer is relatively large (see Willis, Figs. 3A and 3C, col. 3, lines 48-53). Thus, Willis does not disclose, suggest, or give any reason or rationale to provide that the "valve is in a closed state in an electrolytic salt solution comprising an ion having high steric hindrance, said polymer blocks off said pores of said microporous membrane by incorporating the ion having high steric hindrance," as recited in claim 1.

Similarly, Willis does not disclose a process for producing a valve as claimed in claim 1 including steps of "a) a microporous membrane is placed in an electrolytic solution containing at least one monomer and an electrolytic salt, wherein the electrolytic salt

comprises an ion having high steric hindrance; d) the radial polymerization of the monomer in the pores of said membrane is carried out in the presence of the ion having high steric hindrance; and e) the polymerization is stopped by cutting off the electrochemical current when the polymers reach the center of the pores, so that said polymers block the pores of said microporous membrane without overlapping one another by incorporating the ion having high steric hindrance," as recited in claim 16.

Thus, claims 1 and 16 and their dependent claims are not anticipated, or would not have been rendered obvious, by the applied reference. Reconsideration and withdrawal of the rejection are respectfully requested.

B. Willis and Campbell

Campbell is only applied for its teachings of the features of dependent claim 7, and thus does not cure the deficiencies of Willis with respect to claim 1, from which claim 7 depends. Thus, claim 7 would not have been rendered obvious by the applied references. Reconsideration and withdrawal of the rejection are respectfully requested.

C. Willis and Irie

Irie is only applied for its teachings of the features of dependent claims 17 and 19, and thus does not cure the deficiencies of Willis with respect to claim 16, from which claims 17 and 19 depend. Thus, claims 17 and 19 would not have been rendered obvious by the applied references. Reconsideration and withdrawal of the rejection are respectfully requested.

D. Willis and Shikida

Shikida is only applied for its teachings of the features of dependent claim 20, and thus does not cure the deficiencies of Willis with respect to claim 1, from which claim 20 depends. Thus, claim 20 would not have been rendered obvious by the applied references. Reconsideration and withdrawal of the rejections are respectfully requested.

VI. New Claims

By this Amendment, new claims 21-23 are presented. New claims 21-23 variously depend from claim 1 or claim 16 and, thus, distinguish over the applied references for at least the reasons discussed above with respect to claim 1 or claim 16. Prompt examination and allowance of new claims 21-23 are respectfully requested.

VII. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachments:

Petition for Extension of Time
Amended Abstract
Marked-up Copy of Specification
Clean Copy of Specification
Replacement Sheets (Figs. 2-7)

Date: November 30, 2010

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